

1 This listing of claims will replace all prior versions, and listings, of claims in the  
2 application:

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4 **Listing of Claims:**

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6 1. (original) A method comprising:  
7 providing image data; and  
8 performing a Hough transform on the image data using a host processor and  
9 an operatively configured graphics processor.

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11 2. (original) The method as recited in Claim 1, wherein the graphics  
12 processor is configured to count votes in a resulting Hough transform voting  
13 buffer.

14  
15 3. (original) The method as recited in Claim 1, wherein the graphics  
16 processor is configured to convolve image values and provide corresponding  
17 results to the host processor.

18  
19 4. (original) The method as recited in Claim 1, wherein the graphics  
20 processor performs an alpha-blending operation that selectively increments  
21 accumulators that correspond to parameter combinations that are likely associated  
22 with an observation.

1 5. (currently amended) The method as recited in claim 1, wherein the  
2 graphics processor performs a histogram computation to find [[the]] a maxima  
3 value in [[the]] a Hough transform voting buffer.  
4

5 6. (original) An apparatus comprising:  
6 a host processor configured to provide image data; and  
7 a graphics processor operatively coupled to the host processor and  
8 configured to perform selected steps of a Hough transform algorithm on the image  
9 data in association with the host processor.  
10

11 7. (original) The apparatus as recited in Claim 6, further comprising  
12 a local memory operatively coupled to the graphics processor and wherein the  
13 graphics processor is configured to count votes in a resulting Hough transform  
14 voting buffer within the local memory.  
15

16 8. (original) The apparatus as recited in Claim 6, wherein the  
17 graphics processor is configured to convolve image values and provide  
18 corresponding results to the host processor.  
19

20 9. (original) The apparatus as recited in Claim 6, further comprising  
21 a local memory operatively coupled to the graphics processor and wherein the  
22 graphics processor performs an alpha-blending operation that selectively  
23 increments accumulators within the local memory that correspond to parameter  
24 combinations that are likely associated with an observation.  
25

1 10. (presently amended) The apparatus as recited in claim 6, further  
2 comprising a local memory operatively coupled to the graphics processor and  
3 wherein the graphics processor performs a histogram computation to find [[the]] a  
4 maxima value in [[the]] a Hough transform voting buffer within the local memory.  
5

6 11. (original) A computer-readable medium having computer-  
7 executable instructions for performing steps comprising:

8 providing image data; and

9 performing a Hough transform on the image data using a host processor and  
10 an operatively configured graphics processor.  
11

12 12. (original) The computer-readable medium as recited in Claim 11,  
13 having computer-executable instructions that cause the graphics processor to count  
14 votes in a resulting Hough transform voting buffer.  
15

16 13. (original) The computer-readable medium as recited in Claim 11,  
17 having computer-executable instructions that cause the graphics processor is to  
18 convolve image values and provide corresponding results to the host processor.  
19

20 14. (original) The computer-readable medium as recited in Claim 11,  
21 having computer-executable instructions that cause the graphics processor to  
22 perform an alpha-blending operation that selectively increments accumulators that  
23 correspond to parameter combinations that are likely associated with an  
24 observation.  
25

1 15. (presently amended) The computer-readable medium as recited in  
2 claim 11, having computer-executable instructions that cause the graphics  
3 processor to perform a histogram computation to find [[the]] a maxima value in  
4 [[the]] a Hough transform voting buffer.

5  
6 16. (presently amended) A method comprising:  
7 causing dedicated graphics hardware to support [[a]] at least one of the  
8 following steps associated with a Hough transform algorithm:

9 quantizing a bounded portion of a parameter space that may contain a  
10 desired feature;

11 for each discrete quantized parameter combination, allocating an  
12 incrementable accumulator;

13 gathering observations that can be mapped into the parameter space;

14 for each observation, incrementing each of the accumulators that  
15 corresponds to parameter combinations that may have produced the observation;

16 and

17 determining [[the]] a maxima in a resulting quantized parameter array and  
18 the corresponding parameter combinations.